I. QUALIFICATIONS

Q. **PLEASE STATE YOUR NAME, BUSINESS AFFILIATION, AND ADDRESS.**

A. My name is Ed Bodmer. I am a principal consultant with the Analysis Support Network, Inc. (ASNI).

Q. **ON WHOSE BEHALF ARE YOU TESTIFYING?**

A. I am testifying on behalf of the City of Chicago.

Q. **PLEASE PROVIDE A SUMMARY OF YOUR EDUCATIONAL BACKGROUND AND PROFESSIONAL EXPERIENCE.**

A. A copy of my curriculum vita is included with this testimony as City Exhibit 3.1. To summarize my background, I received a B.S. degree in Finance from the University of Illinois and an MBA from the University of Chicago with specialization in econometrics. My regulatory experience has included employment on the Staff of the Illinois Commerce Commission, as well as numerous consulting projects. As a Vice President at the First National Bank of Chicago, I managed analysis of loans including electric and gas utilities, and I worked on a number of energy related financial advisory projects.

II. OVERVIEW OF TESTIMONY

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS PROCEEDING?

A. The City of Chicago ("City") asked ASNI to review and evaluate, on economic and regulatory bases, the appropriateness of the "selective tracing" proposal recommended by the Illinois Commerce Commission Staff ("Staff"). In this context, selective tracing refers to cost recovery of the franchise fee paid to the City by Commonwealth Edison Company ("Edison" or "the Company") from City consumers and recovery of the free and reduced rate service provided by Edison to other local government units ~~only from~~ only from consumers within the localities receiving such services.

The purpose of this testimony is to present the impacts on City and outside City consumers of recovering costs related to franchises fees[1] from consumers on a geographic basis, while recovering all other components of cost of service (on an averaged basis[2]) from all consumers. To estimate the

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[1] Staff's term "franchise fee type costs" has not been clearly defined. For convenience and ease of comparison, I have used costs defined by Edison's response to Staff's data request as a working basis for the costs.

[2] Cost averaging (or spreading) occurs when costs are not attributed to and recovered solely from a particular region, but rather are recovered from all customers. Tracing, in contrast, recovers costs from the specific customers or groups of customers

impacts of a selective tracing policy, we have allocated, on a geographic basis, a number of components of Edison's cost of service, franchise fees among them.

Q. WHAT ARE YOUR CONCLUSIONS WITH RESPECT TO THE SELECTIVE TRACING PROPOSAL MADE BY STAFF?

A. When the City of Chicago franchise fee is analyzed in the context of Edison's overall cost structure, rather than as an artificially isolated cost of service, one conclusion is inescapable: the selective tracing proposal, offered to correct an alleged inequity, in fact, exacerbates an inequity that actually exists. Our analysis shows that singling out and tracing franchise fee costs aggravates geographic inequities that already disfavor the City of Chicago.

Based on Edison data and accepted regulatory principles, we estimate that City consumers are subsidizing consumers who live outside the City by approximately $311 million per year through the averaged cost structure. If the selective tracing policy is adopted and only franchise fees are traced, the subsidy from City customers is increased by $43

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to which they are attributed. Selective tracing, as implemented in Staff's proposal, singles out one specific cost item for tracing, while recovering similar costs from all customers and setting remaining rates based on average costs.

million, yielding a total subsidy to outside City consumers of $353 million.

Q. PLEASE SUMMARIZE THE SUBSIDIES THAT EXIST BETWEEN THE CITY OF CHICAGO AND OUTSIDE CITY REGIONS OF EDISON.

A. When Edison's revenue requirements are allocated on a regional basis, many subsidies in Edison's costs and rates are revealed. The net effect of these subsidies benefits consumers who live outside of the City of Chicago relative to City of Chicago consumers. Analysis of Edison's costs demonstrates that the magnitude of subsidies paid by Chicago consumers related to property taxes, Edison's rate structure, distribution costs, and production costs far exceeds the impact of differences in franchise fees. Table 1 shows our estimate of the magnitude of these subsidies:[3]

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[3] The cost categories and amounts in this table are not intended to be all-inclusive. They are estimates based on the data provided from Edison in this docket, the record from previous dockets, and publicly available reports.

TABLE 1
IMPACT OF REGIONALLY ALLOCATING
SELECTED COMPONENTS OF COST OF SERVICE
($ MILLIONS)

	REVENUE REQUIREMENTS REDUCTION TO CITY CONSUMERS BASED ON REGIONAL ALLOCATION ($ MILLIONS)
FRANCHISE COSTS	$ (42.910)
PROPERTY TAXES	33.109
RATE STRUCTURE	87.727
DISTRIBUTION COST	34.661
PRODUCTION COST	~~198.262~~ 248.21
TOTAL	~~$310.848~~ 360.75

This table demonstrates that the total cost of electricity to City consumers would be reduced by approximately $311 million if Edison revenue requirements as well as franchise fees were allocated regionally.

Q. **WHAT FACTORS GIVE RISE TO THESE SUBSIDIES?**

A. In addition to local government costs, cost of service differences between City and outside City regions are related to factors such as population density, demographics, housing stock, the manufacturing base, income levels, usage patterns, and utility investments. More specifically:

1) Load growth has been significantly greater outside the City than inside the City, which means that Edison's investment related to providing electric service outside the City is significantly greater than the

investment which Edison has made to provide service to consumers inside the City;

2) Under the cost assignment principles adopted by this Commission, the more efficient and less costly usage patterns of consumers inside the City mean that less cost should be assigned to City consumers;

3) Based on existing tariffs, business and residential consumers inside the City pay rates which are 8-10% higher than the average rates paid by consumers outside the City, even without taking the City's less costly usage patterns into account; and,

4) Edison's large new generating plant facilities are located outside the City of Chicago, which means the City does not benefit from property tax payments associated with the new generating plants.

Q. **WHY DID YOU ANALYZE THE CITY'S FRANCHISE FEE IN THE CONTEXT OF OTHER COST OF SERVICE ITEMS?**

A. Under the Staff's selective tracing proposal, franchise fee costs would be singled out and traced to consumers in individual local governments, rather than being spread across all consumers consistently with the principle of cost averaging. Because the Staff proposal would change current Commission practice with respect to one selected cost of service element, but not other similar elements, the proposal's meaning can be understood only in the context of overall costs of service. My testimony will demonstrate that implementing the proposed change in rate treatment in the current circumstances -- especially when only selected costs receive changed treatment -- raises significant equity

concerns because variances between geographical costs of service and applicable rates will be worsened.

Q. PLEASE EXPAND ON THE EQUITY PROBLEMS CREATED BY THE STAFF PROPOSAL.

A. My testimony quantifies significant subsidies which flow from City consumers to outside City consumers. These subsidies exist because of fundamental variances in the cost of service for the City and outside City regions of Edison's service territory, as well as differences in the average rates paid by consumers in the two regions. If franchise costs are selectively traced without any other adjustments to rates, these inequities will be exacerbated.

The equity problems which arise from the selective tracing proposal can be illustrated by the following hypothetical example:

Consider a case where there are two regions for a utility company - Region A and Region B. Assume that the cost of serving consumers in Region A is $200 and the cost of serving consumers in Region B is $100. Assume further that the principle of averaging has historically been used for setting rates, and that through averaged rates customers in each region pay an average rate of $150.

Now say that a particular cost of service item (with a value of $10) which is attributable to consumers in Region B is allocated to those consumers for rate setting purposes while all other costs of service continue to be computed on the basis of averaging. In other words, a new policy is implemented whereby the item is selectively traced. In such circumstances, tracing one isolated cost of service component would aggravate a situation which is already

inequitable. The inequity would increase from $50 to $60 as illustrated below:

	Costs of Service	"Averaged Rate" Recovery	Equity Impact From Averaging	"Selective Tracing" Recovery	Equity Impact From Selective Tracing
A	200	150	50	140	60
B	100	150	(50)	160	(60)

This illustration shows that piecemeal attempts to solve subsidy problems can create problems which are worse than maintaining the status quo. In other words, addressing only one element of a multi-faceted situation can make the situation worse, not better.

Q. **DID YOUR ANALYSIS SEPARATE THE EDISON SERVICE TERRITORY INTO CITY AND OUTSIDE-CITY REGIONS?**

A. Yes, our analysis tracks the principal effect of the selective tracing proposal. The City of Chicago receives the largest annual franchise fee payment from Edison, and the City is most directly and significantly affected by the Staff proposal. Therefore, in evaluating the tracing of local governmental franchise fee costs, the City of Chicago is a logical region to study. To quantify the impacts of

selectively tracing franchise costs in isolation, we analyzed cost, rate and demand data for the City and outside-City geographic areas.

We developed our analysis in this common sense manner because Edison retains a significant amount of data segregated by City and outside-City regions of the company. For example, on its 1991 ICC Form 21, Edison shows that the average revenue per residential customer is 10.04% higher for City consumers than for outside City consumers.

Q. **PLEASE OUTLINE THE ANALYTICAL PROCESS YOU DEVELOPED TO QUANTIFY THE IMPACTS OF REGIONAL TRACING.**

A. In comparing costs of service between the City and outside-City regions, we analyzed a number of issues related to regional costs of service and the effects of Edison's rate design. The remainder of my testimony focuses on the following issues:

- Edison's overall cost of service;
- Regional allocation of franchise costs;
- Regional allocation of property taxes;
- Impacts of load growth on cost of service;

- Regional allocation of distribution costs;
- Regional allocation of production costs;
- Impacts of regional usage and rate differences; and,
- Other implications of selective tracing.

III. EDISON'S OVERALL COST OF SERVICE

Q. **PLEASE DESCRIBE CITY EXHIBIT 3.2, WHICH ALLOCATES EDISON'S OVERALL COST OF SERVICE BY VARIOUS CATEGORIES.**

A. City Exhibit 3.2 shows the first step of our analysis. We separate Edison's costs of service into functional categories: distribution; transmission; property taxes and governmental fees; production costs; and administrative and other costs. The exhibit shows that 66% of Edison's costs are production related costs; 9% of Edison's costs are related to distribution; 4% to transmission costs; 4% are property taxes and municipal fees; and 11% are customer service and administrative costs.

In preparing this exhibit, we used data from Edison's 1991 FERC Form 1, and applied the rate of return approved in

Docket No. 90-0169, adjusted for income taxes and invested capital tax.[4]

To determine the rate impact of tracing costs of service on a regional basis, we have allocated as many of the cost of service items shown on City Exhibit 3.2 as possible.

Q. **IN EVALUATING THE IMPACT OF REGIONALLY ALLOCATING REVENUE REQUIREMENTS BETWEEN THE CITY AND OUTSIDE-CITY AREAS OF EDISON'S SERVICE TERRITORY, WHAT FACTORS DID YOU ANALYZE?**

A. We have allocated Edison's revenue requirements between the City and outside City portions of Edison's service territory by analyzing:

1) Costs related to franchise agreements between Edison and various municipalities, including the City of Chicago franchise fee;[5]

2) Ad valorem property taxes imposed on Edison by local governments;

3) Costs related to differences between usage patterns for consumers located inside the City and consumers located outside the City;

4) Costs associated with constructing generating plants; and,

5) Costs associated with constructing distribution facilities.

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[4] The rate of return is based on pre-tax operating income divided by net plant. In this way deferred taxes and other items such as net working capital are accounted for in the rate of return calculation.

The remainder of this testimony discusses how I have quantified and allocated each of these cost items on a regional basis.

Q. DID YOU ALLOCATE ALL OF THE CATEGORIES SHOWN IN CITY EXHIBIT 3.2 ON A REGIONAL BASIS?

A. No. Some cost items are not easily susceptible to the regional allocation. The items we have not allocated, and the reasons for not allocating them are:

1) Administration Costs - There is no obvious basis for regionally allocating administrative costs since they are not generally location specific. However, if administrative costs were allocated on the basis of other cost of service categories, the subsidies shown in my testimony would increase.

2) Transmission Costs - Theoretically, these costs can be regionally allocated. However, although it would be useful to analyze these costs on a regional basis, we did not have sufficient information to differentiate types of transmission property that would be allocated on different bases. In my opinion, if transmission costs were allocated, additional subsidies from the City would be revealed for the reasons discussed for distribution and production costs.

3) Distribution Operation and Maintenance Costs - Edison could not easily provide a breakout of these costs by functional category and City/outside City regions. While it might be desirable to regionally allocate these costs, my testimony demonstrates that a majority of distribution costs are attributable to capital costs, rather than to these operation and maintenance costs.

4) Non-Income Taxes Other than Property Taxes, Invested Capital Taxes and Municipal Taxes - The most significant tax in this category is the State of Illinois revenue tax. Since this tax is

applied equally to all of Edison's customers, regional allocation is not necessary. However, to the extent that state taxes magnify the impacts of subsidies which we have quantified (such as rate differences), not accounting for this tax means that the size of the estimated regional subsidies is somewhat understated.

IV. REGIONAL ALLOCATION OF FRANCHISE RELATED COSTS

Q. **DESCRIBE THE FRANCHISE FEE COSTS YOU ANALYZED.**

A. Commonwealth Edison's franchise fee to Chicago is compensation for the right to install and maintain its more than two thousand miles of facilities in public rights-of-way in the City of Chicago. The fee is negotiated as part of the compensation for the franchise agreement between Edison and the City. The agreement includes many other terms of value to the City, ranging from tree trimming procedures to an option to acquire Edison facilities at original cost at any time during the term of the franchise agreement. Edison historically has recovered franchise fee costs as the cost of an input required for provision of service. Those costs have been recovered in the same manner as other costs of doing business--from all customers, through base rates. As I understand the selective tracing proposal, only the monetary payments the City receives would be affected. These are the City costs we examined.

The franchise fee type costs attributed to outside City local governmental units are mainly the costs of free service provided and preferential rates.

Q. **WHAT IS THE APPROXIMATE AMOUNT OF THE FRANCHISE FEE COSTS AT ISSUE?**

A. Edison's franchise fee for use of City rights-of-way was $67.085 million in 1990, $71.492 million in 1991, and $71.129 million in 1992. Of that amount, Edison customers in the City paid approximately one-third of the total. Analogous costs attributable to other local governments, as presented in Arlene Juracek's filed testimony in this proceeding ("Juracek testimony") (primarily free electricity service) totalled $17.26 million in 1991.

I understand that the data provided by Edison included only costs attributable to municipalities. Therefore, any similar costs attributable to other units of local government were unavailable. For that reason, the total franchise fee costs may be higher, since under Staff's proposal, costs would also be recovered locally. In addition, for municipalities with no franchise, Edison offers a rider allowing preferential rates for pumping water. Edison estimates the maximum impact of rate concessions for pumping service to be $5.51 million.

Q. **WHAT WOULD BE THE IMPACT OF TRACING FRANCHISE FEE COSTS?**

A. City Exhibit 3.3 shows that if the franchise fee were traced to individual governmental units rather than averaged across regions, revenue requirements allocated to the City would be increased by approximately $42.9 million. Revenue requirements to outside City consumers would be reduced by $42.9 million.

To compute these figures, we first determined the percentage of Edison revenue collected from Edison's City customers (30.32%) and its outside City customers (69.68%). These percentages represent the relative portions of all costs recovered through rates collected from each region. Using the regional percentages, we allocated the regional recovery of Edison's $94.3 million annual franchise fee cost. To derive the net impact of regional tracing of franchise fee type costs to the City and outside City regions, we subtracted the franchise fee cost attributable to a region from the amount it now pays -- i.e., the amount implied by the cost recovery percentages.

On average, for City consumers the impact of regionally tracing franchise type fee costs represents a 2.31% increase in rates based on revenues of $1.854 billion and for non-

City consumers as a group selective tracing generates an average rate decrease of 1.01%. These calculations are shown on City Exhibit 3.3.

The customer class impacts of selective tracing to City consumers depend on whether the additional costs are applied using a line item "adder" as suggested by Edison or a per kilowatt hour adder as recommended by Staff. If the Staff method is used, costs to City business consumers will increase by approximately $28.4 million, while costs to City residential consumers would be increased by approximately $7.9 million. If Edison's percentage adder is applied, costs to City businesses would increase by approximately $24 million, and costs to City residential consumers would increase by approximately $14.2 million.

V. REGIONAL ALLOCATION OF PROPERTY TAXES

Q. **PLEASE DESCRIBE THE PROPERTY TAX COSTS YOU ANALYZED.**

A. Edison's property taxes for 1991 amounted to approximately $140 million--of which City consumers paid almost one-third, even though more than 90% of the property taxes were paid to non-Chicago local governments. Some local governments with

Edison generating facilities within their boundaries receive very large property tax payments from Edison. Those payments are recovered through Edison's base rates, despite being clearly attributable to identifiable local governmental units and geographical areas. Because of population density and other factors relevant to locating generating plants, Edison's newer plants and the related property tax payments are located outside the City.

Q. **HOW HAVE YOU QUANTIFIED THE IMPACTS OF TRACING PROPERTY TAXES ON A REGIONAL BASIS?**

A. I show the impact of regionally allocating property taxes on City Exhibit 3.4. The exhibit is based on tracing property tax costs on a regional basis to communities which receive payments from Edison. If revenue requirements associated with property taxes were traced to the localities which impose the taxes, revenue requirements in the City would be reduced by $33 million and revenue requirement increases of $33 million would occur for outside City consumers. The calculations shown in City Exhibit 3.4 are made using the same method used to compute the impacts of tracing franchise costs.

Q. **HOW DOES TRACING PROPERTY TAXES RELATE TO THE REGULATORY PRINCIPLES YOU MENTIONED EARLIER?**

A. Tracing property taxes on a regional basis is merely a consistent application of the tracing policy Staff proposes to apply to franchise fee costs. Ross Hemphill (City Exhibit 2.0) shows in his testimony that franchise fee costs and other similar costs such as property tax costs should be treated in a consistent manner for ratemaking purposes. Under standard ratemaking practice, similar costs would be similarly treated; if franchise fees are traced, property taxes should be as well.

Q. **WHAT IS THE NET (CUMULATIVE) EFFECT OF TRACING BOTH FRANCHISE FEE COSTS AND PROPERTY TAXES?**

A. The overall impact of tracing franchise fee type costs and property tax costs is a slight rate reduction for outside City customers, but only if there is averaging within that group. If the tracing mechanism is consistently applied so that no local government provides a subsidy to any other, residences in some localities could experience very large increases. (The impacts reported in my testimony for outside City customers generally assume averaged rates for the outside City area).

VI. IMPACT OF LOAD GROWTH ON COST OF SERVICE

Q. HOW DOES GROWTH IN ELECTRICITY DEMAND AFFECT REVENUE REQUIREMENTS?

A. Load growth has significant impacts on Edison's revenue requirements for several reasons. First, because the cost of constructing new facilities greatly exceeds the cost of older facilities already in place to serve historic demand, serving new demand has appreciably higher cost. The cost difference between new and old facilities is due in part to substantial inflation over the extended life of utility facilities and in part to significant increases in the real cost of plant construction. Second, the amount of accumulated depreciation associated with old plant is more than the amount associated with new plant, simply because the older plant has been depreciated for a longer period of time. Since accumulated depreciation is deducted from rate base, the revenue requirement associated with older facilities is significantly lower than the revenue requirements for newer facilities.

Q. ARE THERE NOTEWORTHY DIFFERENCES IN DEMAND GROWTH FOR THE CITY AND OUTSIDE CITY EDISON SERVICE AREAS?

A. Yes. Figure 1, on the following page, shows trends in peak load and energy usage for the City and outside City regions

FIGURE 1
GROWTH IN PEAK DEMAND

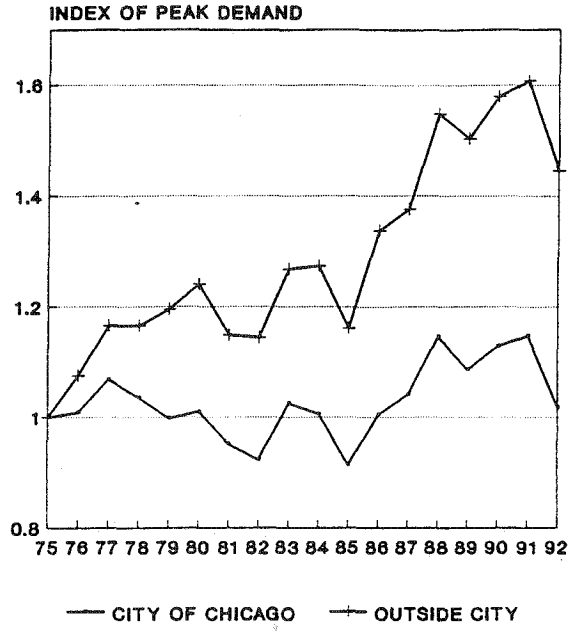
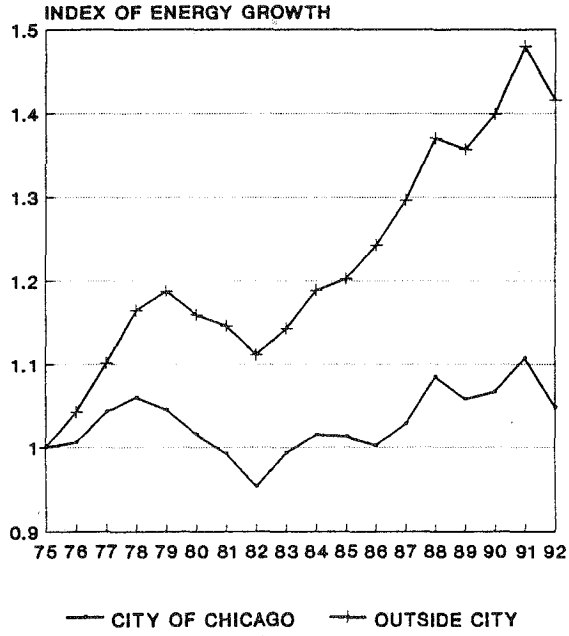


FIGURE 1
GROWTH IN ENERGY DEMAND



of Edison. The graph uses 1975 as a base year and illustrates the rate of growth since 1975. Figure 1 shows that electricity use in the City of Chicago has been relatively steady over the last fifteen years, while during the same period, load has grown rapidly for the outside City area. Since 1975, the City's energy usage has risen less than 5%, while energy use outside the City has increased by 42%. In terms of peak demand, the growth inside the City has been 1.7% while growth outside the City has been 44.6%.

The difference in electricity growth between the City and outside City regions of Edison implies that there are significant regional differences for Edison's distribution, transmission and production costs.

Q. **HOW HAVE YOU ANALYZED THE IMPACTS OF TRACING THE DISTRIBUTION AND PRODUCTION COST COMPONENTS OF EDISON'S COST OF SERVICE?**

A. In evaluating the impact of regionally tracing Edison's costs of generating, transmitting and distributing electricity, we separated Edison's production related costs and its distribution related costs. We allocated the distribution costs to City and outside City regions based on the location of the facilities -- i.e. whether the facilities are located inside or outside City boundaries.

We allocated production costs based on the relative rates of growth in electricity demand. We did not quantify transmission related costs because those costs cannot be directly allocated by either location or growth. A portion of transmission costs can be attributed to location, while another portion of the costs is attributable to generating plant location.

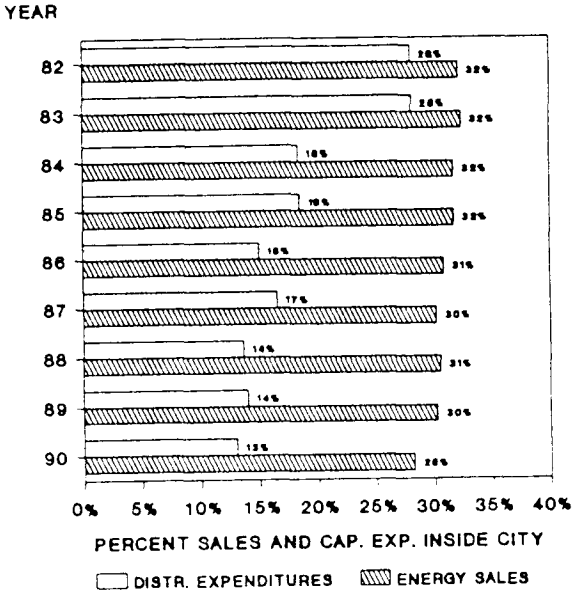
VII. REGIONAL ALLOCATION OF DISTRIBUTION COST

Q. **WHAT INFORMATION HAVE YOU USED TO EVALUATE EDISON'S DISTRIBUTION COST?**

A. City Exhibit 3.5 shows the data we used to evaluate Edison's distribution costs. Page 2 of the exhibit shows Edison's distribution costs, separated between operating and capital costs. Exhibit 3.5 shows that capital costs represent the majority of Edison's total distribution costs. Edison's return on its investment constitutes nearly 60% of total distribution costs. On the other hand, distribution operation and maintenance (O&M) expenses make up approximately 40% of total distribution costs.

Page 3 of City Exhibit 3.5 shows data on Edison's capital expenditures for distribution from 1982 through 1990, separated between City and outside City regions. This data is presented in Figure 2 below, which compares City of Chicago energy sales divided by total system energy sales and City capital expenditures for distribution divided by Edison's total distribution expenditures.

FIGURE 2
DISTRIBUTION CAPITAL EXPENDITURES AND
ENERGY SALES FOR CITY AND OUTSIDE CITY



accounting report, which separates most of Edison's investment cost into the City and outside City categories.

To allocate accumulated depreciation by region, we used the vintage capital expenditure data from Edison's plant reports (i.e., the dollar value of plant in service, by year) and computed the dollar-weighted average age of its facilities located within City boundaries. This analysis shows that the average age of City distribution plant is 16.17 years. Based on analysis of accumulated depreciation, we computed that the average age of outside City distribution property is 11.12 years. Using this age data, we calculated that 34% of Edison's accumulated depreciation for distribution property is attributable to facilities located within the City; while 66% is attributable to facilities outside the City.

We computed regionally allocated revenue requirements associated with distribution plant by multiplying the net plant by the tax adjusted rate of return. (The methodology for adjusting the rate of return for depreciation and taxes is shown on page 2 of City Exhibit 3.2). To determine the impact of regionally tracing distribution costs, we subtracted the amount now recovered from a region from the regionally allocated distribution costs.

City Exhibit 3.5 shows that if distribution costs are traced on a regional basis, revenue requirements are reduced by $34.6 million inside the City of Chicago.

VIII. REGIONAL ALLOCATION OF PRODUCTION COSTS

Q. CAN PRODUCTION PROPERTY BE ALLOCATED IN THE SAME MANNER AS DISTRIBUTION PROPERTY?

A. Distribution facilities serve consumers in the areas where the facilities are located. Power plants generate energy that can serve consumers from remote locations. Therefore, it is not reasonable to attribute production costs based on the location of generation plants. However, the basic notion that the costs of serving newer load are higher is even more pronounced for generating assets than it is for distribution assets. For example, the cost per kw (net of accumulated depreciation) of capacity at Edison's Fisk Station built in 1959, is $110/kw. On the other hand, the cost of capacity at the Braidwood units, completed in 1987 and 1988, is $1,930/kW.

Q. **WHAT FRAMEWORK HAVE YOU DEVELOPED TO ALLOCATE EDISON'S PRODUCTION COSTS?**

A. One way to consider regional production costs is to think about costs of serving the City and outside City regions of Edison if the two regions were served by hypothetical separate utilities. In this scenario, the production related costs for the City would be based on older fossil fuel capacity, with capital costs dramatically lower than the capital costs from newer plants required to serve high growth areas outside the City. However, fuel costs would be somewhat higher for the older facilities; nuclear facilities have lower marginal fuel costs than older fossil capacity. Further, because operation and maintenance costs for nuclear facilities are high, the non-fuel operation and maintenance expenses would be higher outside the City than inside the City.[7]

Page 2 of City Exhibit 3.6, showing Edison's production costs separated between fuel related costs and non-fuel operation and maintenance, confirms these relative magnitudes. The exhibit demonstrates that the non-fuel

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[7]If revenue requirements were actually calculated on a separate basis for the City and outside City portions of Edison, dispatch of production facilities would not be substantially different than the dispatch which occurs on an integrated basis. Rather, interchange transactions would occur which would result in purchases from the newer lower marginal cost outside City generating plants to the higher marginal cost inside City system.

operating and maintenance expense is significantly greater for nuclear units than for fossil units (by more than $600 million).

I have assumed that non-fuel operation and maintenance expenses approximately off-set differences in fuel expense. Based on this assumption, I have allocated production cost by analyzing the capital costs associated with Edison's actual generating facilities.[8] The assumption is shown to be conservative by a trial allocation of non-fuel operation and maintenance expenses using the procedure described below for production capital costs. This analysis results in $71.5 million less non-fuel operation and maintenance expense being allocated to the City region. This lower operation and maintenance expense means that fuel cost could be increased by $36.5/MWH in the City and total production operation and maintenance expenses would be equivalent for the two regions. The difference of $36.5/MWH more than compensates for fuel cost differences which could arise from

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[8]It is important to note that we have not allocated any surplus capacity differently as between the City and outside City portions of Edison, and we have not made any assumptions with respect to differential returns for capacity that the ICC has judged to be non-used and useful. It could be argued that the unpredictability of load growth over long time periods has more to do with load outside the City than inside the City. However, to be conservative in measuring costs, I have allocated costs associated with uncertainty in demand (i.e. excess capacity) to all customers on the basis of energy usage.

differences in the running costs of Edison's new and old plants.

Q. **PLEASE DESCRIBE THE REMAINDER OF CITY EXHIBIT 3.6.**

A. City Exhibit 3.6 applies the framework outlined and shows that regionally tracing production cost reduces City revenue requirements by $198.262 million.[9] In making these calculations, we first separated the costs of Edison's generating plants according to whether the plants were built before or after 1975. The weighted average revenue requirement per kW of facilities constructed before 1975 is shown on line 1. The weighted average revenue requirements of generating plants constructed after 1975 is shown on line 2. These calculations are derived from the plant by plant analysis shown on page 3 of City Exhibit 3.6.

We allocated the cost of new and old plant based on the relative amounts of demand growth in 1975-1991, as compared with the pre-1975 load. Based on growth in load, 15% of the capital cost of new facilities is be allocated to the City while 85% is allocated to the outside-City region. Using

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[9] I have not made differential rate of return assumptions based on used and useful allocations because of uncertainty of Edison's pending rate case, and because when the plants become used and useful, they will earn a full return.

pre-1975 load, 34.4% of the cost of Edison's old facilities are allocated to the City; the remaining 65.6% to the outside City region.

To compute the amount of production related revenue requirements incurred by City and outside-City consumers under the averaged cost structure, we allocated total new and old production costs by ~~peak load~~ existing revenue levels. ~~This is representative of the manner in which capacity costs are allocated in Edison's cost of service studies.~~

City Exhibit 3.6 shows that regionally tracing production costs results in an allocation of significantly more costs to the outside-City region of Edison. The revenue requirement impact of allocating production costs on a regional basis implies increases of ~~$198.2~~ $248.2 million to the outside-City region of Edison's service territory. The regional tracing results in a ~~10.69%~~ 13.39% rate decrease to the City consumers and ~~a 3.24%~~ 4.06% increase for outside City consumers.

City 100% load factor
outside 5% load factor
} ~~Total~~ all demand costs

City Energy ~~50%~~ 20% / peak 20%
outside city 50% / peak 80%.

IX. RATE STRUCTURE AND USAGE IMPACTS

Q. YOU HAVE ANALYZED EXISTING SUBSIDIES BASED ON REGIONALLY TRACING COSTS AND COMPUTING DIFFERENCES IN AVERAGE COST PER KWH. ARE THERE OTHER INEQUITIES THAT ARE NOT CAPTURED BY THAT TYPE OF ANALYSIS?

A. Yes. Up to this point my analysis has focused on differences in cost of service between the City and outside-City regions of Edison. However, allocating costs is only one half of the equation in evaluating regional equity. The other half of the equation involves comparing rates with cost of service by region.

For example, if (hypothetically) there were no differences in regional costs of service, but average rates are significantly greater for one region than another, significant inequities and subsidies may still exist. Therefore, in evaluating the impact of selective tracing, rate differences must be considered as well as cost of service differences.

Q. CAN'T COMPARING AVERAGE RATES FOR ALL CONSUMERS IN THE REGION CAN BE MISLEADING?

A. Yes. When average rates per kWh are compared across regions, it is important to account for legitimate rate differences which may exist because of different usage patterns. Furthermore, if existing rates do not fully reflect usage differences, it is necessary to make adjustments when evaluating impacts of regional tracing. For example, assume that a large single family home with central air conditioning and a swimming pool and a small apartment building use the same amount of energy per year and pay the same average rates per kWh. The energy usage for single-family homes occurs relatively more during periods of the year when Edison's bulk power system is experiencing peak loads. Since Edison must construct its facilities to meet peak demand, the costs associated with serving the hypothetical single-family home greatly exceed the costs of serving the apartment building, and average rates should reflect this difference.

The distribution of housing types is such that the City of Chicago's usage (as a whole) more closely approximates that of an apartment building than a single-family home. The opposite is true of Edison's outside-City area. In addition, the concentration of business users in the City is another reason that Edison's average City rates should be lower than outside-City rates, since businesses generally

have more efficient usage characteristics than large single family homes.

Q. HOW DO YOU DETERMINE THE RELATIVE EFFICIENCY OF CUSTOMERS' USE OF ELECTRICITY?

A. A customer's or region's load factor is derived by dividing average demand (total energy/hours of use) over a period of time by peak demand. The higher the load factor, the greater the average demand relative to peak demand. In the example I used above, the single-family home would have a lower load factor than the apartment building. Consumers with higher load factors use Edison's facilities more efficiently, in the sense that average costs per unit of energy consumed are less for those consumers. The lower cost associated with high load factors stems from a reduced need to construct facilities which are required to serve peak demand spikes.

If load factors are greater for one region than another, regional tracing should reflect the lower average costs of serving customers with better load factors.

Q. WHAT EVIDENCE DO YOU HAVE THAT USAGE CHARACTERISTICS FOR CITY CONSUMERS ARE MORE EFFICIENT THAN USAGE CHARACTERISTICS FOR OUTSIDE CITY CONSUMERS?

A. There is substantial evidence that because of differences in housing stock, demographics, income levels and business make-up, the load factor for consumers inside the City of Chicago is substantially higher than the load factor for outside-City consumers. Page 1 of City Exhibit 3.7 shows that in terms of customer mix (on the basis of energy sales) the City has a higher proportion of non-residential business customers than the outside-City regions of Edison territory. For example, the City percentage of residential sales to total sales is 24.5% while outside City residential percentage is 30.8%. Since the load factor for business is generally better than the load factor for residences, the higher business proportion contributes to a better load factor for the City than for outside-City consumers.

Page 2 of City Exhibit 3.7 shows that for residential customers, the proportion of sales to multi-family dwellings with more than two apartments is significantly greater inside the City than outside the City. The percentage of multifamily dwellings inside the City is 55%, while it is only 25% outside the City. Based on Edison's cost of service study, the load factor for multifamily customers is

52.10%, while the load factor for single family consumers is 30.93%.

Page 3 of City Exhibit 3.7 presents data on Edison's overall load factors for the City and for non-City Edison territory. The exhibit shows that the City's load factor has consistently been 4-5% higher than the load factor for outside the City. Thus, average rates per kWh should be lower for the City region than for the outside-City region.

Q. **HOW HAVE YOU ACCOUNTED FOR DIFFERENCES IN USAGE CHARACTERISTICS IN YOUR ANALYSIS OF SUBSIDIES?**

A. We compared regional average rates by customer class to account for differences in class usage characteristics, and we used information from Edison's cost of service study to further evaluate the impact of differences in residential usage. The additional adjustment for residential rates is required because residential service tariffs do not distinguish energy and demand costs.

Q. **WHAT FRAMEWORK HAVE YOU USED TO QUANTIFY RATE AND USAGE DIFFERENCES BETWEEN THE CITY AND OUTSIDE CITY REGIONS OF EDISON?**

A. City Exhibit 3.8 presents our computations of the dollar impacts of differences in rates and efficiency of use

between the City and outside-City portions of Edison. In making these calculations, we have used the following two step process:

Step 1: Compute the dollar impacts by customer class which arise because of average rates which are higher inside the City than outside the City.

Step 2: Compute the dollar impacts of better City load factors in the residential class based on Edison's cost of service study.

The computations show that if Edison's rate structure resulted in equivalent rates for the City and outside-City regions by customer class, rather than the current rate differentials, City revenue requirements would be reduced by $68.6 million. Furthermore, if Edison's residential rate structure appropriately reflected the better usage patterns of multifamily housing, City revenue requirements would be reduced by another $19.1 million.

Q. **PLEASE EXPLAIN THE FIRST STEP OF YOUR PROCESS, AS IT IS DESCRIBED ON PAGE 2 OF CITY EXHIBIT 3.8.**

A. Edison's tariffs include a declining block for both business and residential consumers -- that is, a volume discount. Because average usage is lower for residential as well as business consumers inside the City, average revenue per kWh is higher for City consumers than that paid by outside City consumers. These differences in average rates paid do not reflect the differences in the efficiency of consumers' use

of Edison's facilities, or in Edison's costs. Therefore, the first step in my analysis computes the dollar impact on City and outside City consumers of establishing rates which are equivalent by customer class (after adjusting for differences in municipal taxes).

City Exhibit 3.8 presents our calculations of the impact of differences in average rates. First, I show average City and outside City rates for residential consumers, Rate 6 commercial and industrial consumers, and Rate 6L commercial and industrial consumers. (These rates include an adjustment to reflect different municipal tax rates for City and outside-City areas.) Next, we compute the difference between City and outside City rates for residential consumers, and we multiply the rate difference by the residential energy sales amounts to derive the dollar impact of applying equivalent rates. To compute dollar impacts from rate differences for other customer classes we made similar calculations (lines 7-11 of City Exhibit 3.8).

City Exhibit 3.8 shows that total dollar impacts of $68.6 million result from computing rates on an equivalent basis for City and outside City regions of Edison. If average rates were equivalent for the City and outside-City

consumers, average rates would be reduced by 3.7% inside the City and be increased by 1.6% outside the City.

Q. **PLEASE DESCRIBE YOUR METHOD FOR EVALUATING THE IMPACTS OF RESIDENTIAL USAGE DIFFERENCES.**

A. I have previously discussed the fact that usage patterns of electricity are more efficient and less costly inside the City than outside the City, as reflected by higher City load factors. For non-residential consumers, each of which has a meter capable of recording peak demand as well as energy consumption, load factor differences are accounted for through separate energy and demand charges. In contrast, residential consumers pay rates based on energy consumption alone, with no rate differentiation based on load factor.

Because residential consumers in the City have a better load factor than residential consumers outside the City and because Edison's rate structure does not capture this difference, we have developed a method to compute the dollar impact of differences in residential usage. While Edison's cost of service study does not compute residential cost of service on a regional basis, it does provide segregated costs for single family and multifamily consumers. This means that the large difference in the distribution of single family and multifamily consumers between the City and

outside-City regions of Edison can be used as the basis for a conservative estimate of these cost of service impacts.

Q. HOW HAVE YOU QUANTIFIED THE IMPACTS OF DIFFERENCES IN RESIDENTIAL USAGE.

A. Our calculations of the impacts of residential usage differences are shown on page 2 of City Exhibit 3.8. We first multiply the percentage of single family and multifamily sales in the City and outside the City by the costs of service for single family and multifamily consumers. (Costs of service are taken from Edison's cost of service study, as presented in the Testimony of Paul Crumrine in Docket 92-0169.) This calculation yields the regions' weighted average costs of service. Next, we subtracted the regional costs from the overall average cost of service and multiplied the difference by residential sales to derive dollar impacts. The exhibit shows that total dollar impacts of $19.1 million result from adjusting residential rates to reflect usage patterns.

XI. SUMMARY AND OTHER IMPLICATIONS

Q. YOU HAVE DEVELOPED MANY COST OF SERVICE AND RATE IMPACTS FROM REGIONAL ALLOCATION. ISN'T IT POSSIBLE THAT YOU HAVE DOUBLE COUNTED SOME OF THESE IMPACTS?

A. In developing our framework, we have been careful to assure that the computations do not overlap one another. In making our allocations, there are three general classes of regional allocation - cost of service, average rates and residential usage differences. No overlap exists between cost of service and average rates, because the rate difference calculations establish a reference point to begin the analysis, while the cost of service calculations derive how rates should differ because of different regional costs. Furthermore, there is no overlap between the residential usage and cost of service computations, because the cost of service calculations involve actual incurred costs, while the residential usage computations involve allocating overall incurred cost based on load factor differences.

Q. IS IT YOUR RECOMMENDATION THAT ALL COST OF SERVICE ITEMS BE TRACED ON A REGIONAL BASIS?

A. No. My testimony is that it is inappropriate to selectively trace only one component of similar costs of service. In other words, if three alternative possibilities are

considered -- (1) fully tracing costs; (2) consistently averaging costs; and (3) selectively tracing some costs and averaging others -- the option of selectively tracing only franchise fees is worse than either of the other options. Recall the hypothetical two-region utility I described at the beginning of my testimony. As the discussion of my analysis has shown, that situation is analogous to the current City/outside City allocation of costs. As in the hypothetical, selectively addressing a single cost element, here franchise fee, will exacerbate an already inequitable situation.

Q. **WHAT IMPACTS WOULD TRACING COSTS ON A REGIONAL BASIS HAVE ON FUTURE EDISON RATE PROCEEDINGS?**

A. If selective costs such as the franchise fees were allocated on a regional basis, the economic pressures on the City of Chicago to seek rate revisions reflecting the lower cost of serving the City, would increase significantly. Selective assignment of costs as a policy could lead to an unraveling of the current averaged-cost rate structure for all of Edison's consumers. In some communities that collect high property taxes from Edison, this could make electric service unaffordable. For example, if property taxes were traced on a regional basis, monthly electric bills would increase by over $700.00 for every residential customer in Ogle County,

almost $500.00 for every customer in Grundy County, and almost $150.00 for every customer in LaSalle County.

Q. **DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?**

A. Yes.